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## MISCELLANY AND NOTICES.

## THE FIFTY-EIGHTH REGISTRATION REPORT OF MASSACHUSETTS.

*Fifty-eighth Annual Report of Births, Marriages, and Deaths in Massachusetts for the year 1899.* Prepared by the Secretary of the Commonwealth. Edited by Francis A. Harris, M.D. Boston, 1900; pp. 215.

The defects of the registration report for 1899 may be classified under three heads,—typographical mistakes, arithmetical blunders and errors of judgment in the handling of the material. Mistakes of the first sort are made obvious by sudden breaks in the uniformity of a series of figures, without any adequate reason. The laws which control vital phenomena are as immutable as those which regulate the movements of the planets; and statisticians recognize an abrupt deviation from an otherwise harmonious series of observations as a sign that the calculations require revision. Thus on page 140 of the Massachusetts report, in a table of the “Average Ages at Marriage from 1880–1899,” we find that the average age of all brides has gradually and very slowly increased, and, during the whole period, with the exception of two years, has varied only from 25.0 to 25.8. The recorded rates for the two years mentioned, 1895 and 1897, are, however, 23.2 and 24.8, respectively; and any one familiar with vital statistics would look upon these figures with suspicion, in the absence of any editorial comment in explanation of such abnormalities. Similarly the average age of women marrying for the first time has not fallen below 24.1 or risen above 24.5, since 1884, except in 1894, when the probably erroneous figure of 23.7 is recorded. There is an apparent mistake of the same sort in the average age of all bridegrooms for 1881, but this is copied from older reports and cannot be charged to the present editor. In the table of “Living Births” by months, quarters and periods of six months, on p. 128, are

three similar deviations, one, the births for January, 1884, and two in recent years, the births for January, 1896, and for November, 1897. If these are errors either in registration or computation they must vitiate all the general averages at the foot of the table. There is an infelicitous bit of English on this last page, in which we are informed that for the two years, 1895 and 1896, "the deaths from unspecified dates are excluded." Unspecified dates must, no doubt, be unwholesome; but it seems reasonable to exclude such deaths from a table of "Living Births." The table of "Births and Birth-rates by Counties," on p. 126, furnishes a more serious error. Here the birth-rate of Essex county in 1895 is given as 34.74, while Suffolk has only 31.06; and the editor comments on this fact on page 124, noting that "The birth-rates present considerable variations, Essex county having the the highest." Anyone familiar with vital statistics knows that, in this country, rural birth-rates are always lower than those of urban districts, and that such a condition as that described is incredible. A comparison of the number of births in Essex county, given on p. 126, with the population as given on p. 2, shows that this 1895 birth-rate should be 24.23 and not 34.74.

The errors of the second class mentioned, the errors of calculation, are generally due to a neglect of the arithmetical principle that the average of a series of ratios is not the same thing as the ratio between the sums of the two sets of terms from which the first ratios were calculated. To add together the death-rates of Boston and Brookline and divide by two would not give the death-rate of the combined population. When the base for the calculation of a series of ratios is nearly the same the averaging of ratios is often practiced, although theoretically improper, without gross error. The rates for successive years in the same district are frequently averaged in this manner, and the tables of birth-rates on p. 123 and of death-rates on p. 165 have at least the sanction of common practice. This principle, however, is strained rather far on p. 147, where it is applied to more variable factors, like the marriage-rates for a period of ten years. And in the table of plural births on p. 134 its application to such extremely variable factors as the ratio of living births to cases of twins and triplets is quite inadmissible. The average ratio of living births to one case of twins for the twenty years 1880-99 is given by the editor as 109.6; and the average ratio to one

case of triplets as 12229.8. These are the averages of the ratios; but not the average ratio, which any reader would take them to be. The true rates for the twenty years as calculated from the number of plural births, and the total number of living births, given on p. 122, are 107.6 and 10026.6, showing the error of the editor's method to be about 20 per cent in the latter case. There is some curious mistake in calculation in the table showing the nativity of children born, on p. 132. Three columns are given representing the percentages of children born of native parents, of foreign parents, and of one native and one foreign parent. Up to 1897 the total of the three columns equals one hundred per cent; but for 1898 it is only 99.61, and for 1899 it is 99.71. In the tables of births and birth-rates by months and quarters, on p. 127, the results given are most misleading because no allowance is made for the number of days in the month. Thus the "monthly percentage of births" is given as 7.7 for February and 8.3 for October, and the editor states that "the least number of births occurred in February." If the average daily number of births be calculated, as should of course be done, the February rate is found to be 193, in excess of April with 181, May with 177, June with 185 and October with 189.

The defects of the *Massachusetts Registration Report* are, however, more deep-seated than is indicated by such errors in detail. Since its publication was taken out of the hands of experts in 1890 no attempt has been made to keep pace with the advance of science. The present report in comparison with those of other progressive states is archaic and incomplete. In 1890 it was already obvious that the subject of municipal statistics was of all questions the one most deserving the attention of the student of the future, and a good beginning in the tabulation of such data was begun. Since that time no new steps have been taken, except the backward one, of dropping the large towns from Supplement A to Table 8, p. 36. Even the cities were not included between 1891 and 1897. In the 1899 report as a whole there are twenty-eight tables of county statistics and only four tables of the statistics of cities and towns. As the county is a purely artificial division the former tables have no practical significance whatever, and even their sentimental interest is today small. The value of the tables which are given is

impaired by the omission of data needed to interpret the figures recorded. Thus no ratios are calculated for the tables of births on p. 18; no populations are included in the table of births by cities on p. 21; and the annual rate of increase is omitted from the table showing the change in the population of the state on p. 121. The ratio of divorces to marriages on p. 147 is misleading. The number of divorces should be referred to the number of marriages eleven years before (as the average period before divorce is eleven years), or to the total married population. The nosological classification of the causes of death is antiquated and unscientific, being, as stated, "with slight modifications, identical with that embodied in a report drawn up by William Farr, Esq., M.D., of London, for the consideration of the International Statistical Congress, which met at Paris in September, 1855." In spite of the obvious advantages of uniformity with the past it is at least questionable whether more than "slight modifications" are not needed to bring the system into harmony with medical science in 1899! The table on p. 178 giving the percentage of causes of death by the classes of disease, Zymotic, Constitutional, Local, etc., is another relic of the past. The publication of such a table in 1890 was perhaps excusable; in 1899 students of vital statistics knew that the use of these group death-rates is wholly vicious and that such a table is valueless.

The comparative birth-rates, marriage-rates and death-rates in various foreign countries, given on pages 124, 143 and 167, respectively, and taken from Dr. Mayo-Smith's text-book on Statistics and Sociology, are very good for the period prior to 1894. A reference to current statistical literature, however, would furnish more recent and therefore more strictly comparable data. The figures for the year 1894, indeed, may be found in the 1898 Report of the Mass. State Board of Health. The figures for the population of the State at the different age periods in 1890 are omitted from the table on p. 174, and in speaking of this the editor remarks: "It is to be regretted that the materials for 1890 could not be found to complete the table." This statement has been printed with regularity since 1895, but the desired figures were published by the U. S. Census Bureau in 1897 and may be found in the Report on Population of the United States at the Eleventh Census, 1890, Part II, p. 44.

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